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MS APPEAL BRIEF - PATENTS
PATENT
4450-0160P

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of — Before the Board of Appeals

Michael G. TAYLOR — Appeal No.:

Appl. No.:	09/697,703	Group:	2633
Filed:	October 27, 2000	Examiner:	A. Bello
Conf.:	4821		
For:	POLARIZATION MODE DISPERSION COMPENSATING APPARATUS, SYSTEM AND METHOD		

REPLY BRIEF TRANSMITTAL FORM

MS APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

November 18, 2004

Sir:

Transmitted herewith is a Reply Brief (in triplicate) on behalf of the appellants in connection with the above-identified application.

☐ The enclosed document is being transmitted via the Certificate of Mailing provisions of 37 C.F.R. § 1.8.

The Examiner's Answer was mailed on September 21, 2004.

☐ An extension of time under 37 C.F.R. § 1.136(b) to was requested on and was approved on .

☐ Please charge Deposit Account No. 02-2448 in the amount of $0.00. A triplicate copy of this sheet is attached.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By ______________________
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MRC/HNS/csm
4450-0160P

Attachment(s)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael G. TAYLOR	Appeal No.:	
Appl No:	09/697,703	Art Unit: 2633	
Filed:	October 27, 2000	Examiner: A. BEL[illegible]	
For:	POLARIZATION MODE DISPERSION COMPENSATING APPARATUS, SYSTEM AND METHOD		

REPLY BRIEF ON BEHALF OF APPELLANT: Michael G. Taylor

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

November 18, 2004

Sir:

This is a Reply to the Examiner Answer dated September 21, 2004 provided in response to the Appeal Brief filed on behalf of the Appellant on June 30, 2004, which was filed to appeal the decision of the Examiner in the Final Office Action dated November 6, 2003.

1. STATUS OF CLAIMS

Appellant appreciates that the Examiner has indicated claims 19 and 20 are now allowable. *See Examiner's Answer, page 16, lines 9-10.* Therefore, claims 1-18 and 21-23 are now the subject of the appeal.

2. BULOW CANNOT TEACH POLARIZATION MODE DISPERSION COMPENSATOR AS CLAIMED

Independent claims 1 recites, in part, "an **output** of said polarization mode dispersion compensator **serving as an output of the** polarization mode dispersion compensating **apparatus.**" *Emphasis added.* Also, claim 12 recites, in part, "compensating … wherein an optical signal **output** of a polarization mode dispersion compensator **serves as an output** of a polarization mode dispersion compensating **apparatus.**" *Emphasis added.* In other words, the claims require that the output of the polarization mode dispersion compensator is the output of the apparatus. Clearly understood is that the output of the apparatus is same in form as the output of the polarization mode dispersion compensator.[1]

As an example, Figure 3 of the present application is reproduced below to illustrate this point. As seen, the output of the polarization mode dispersion compensator 40 serves as the output 99 of the apparatus. Note that output 99 is in the same

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[1] A signal being split, amplified, or repeated would be same in form. However, a signal that changes domain (electrical to optical and vice versa) or changes in information content would not be same in form.

form as the output of the polarization mode dispersion compensator 40.

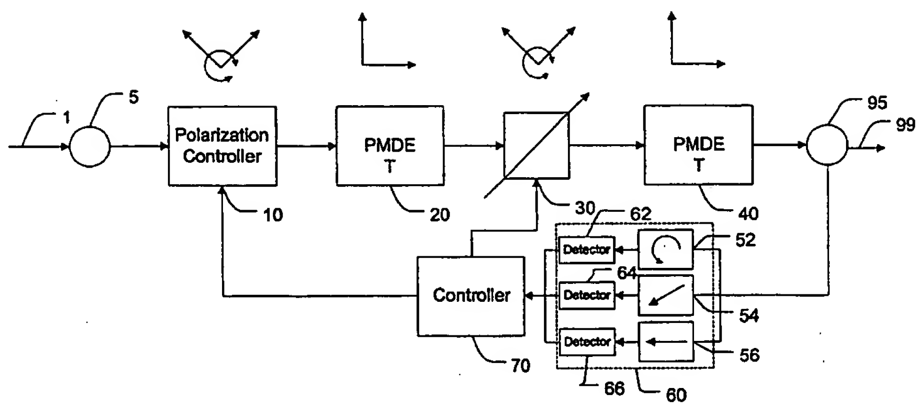

Figure 3

The Examiner continues to assert that the polarization controller 1.7 as disclosed in Bulow (USPN 5,793,511) is equivalent to the polarization mode dispersion compensator as claimed. *See Examiner's Answer, page 11, line 7 - page 12, line 7.*

However, as explained in the Appeal Brief, the output of the optical receiver device as disclosed in Bulow is the data signal D 1.10, which is output from the equalizing circuit 1.2. *See Bulow, Figure 1 - reproduced below for convenience.* It is

clear that the data signal D 1.10 is not outputted from the polarization controller 1.7.

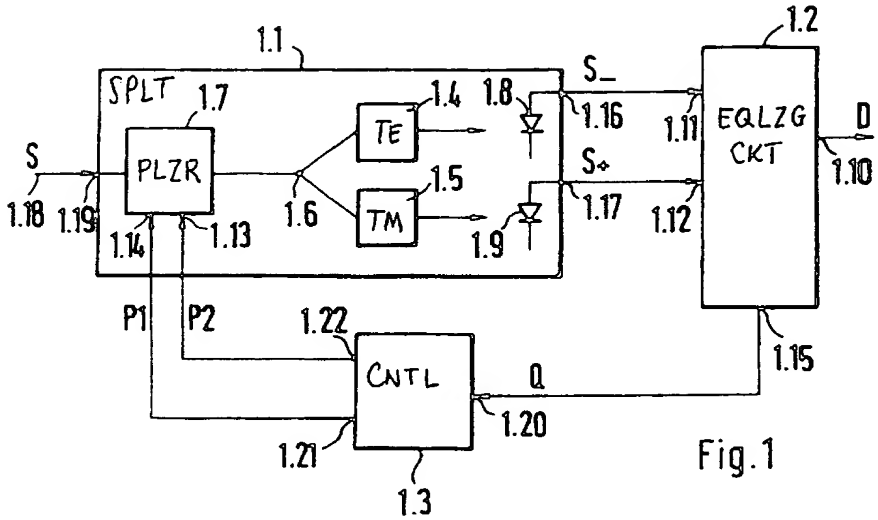

Fig.1

Having established that the data signal D 1.10 is not outputted from the polarization controller 1.7, then the next inquiry is to determine whether the data signal D 1.10 is really the same signal, in form and substance, to the output of the polarization controller 1.7. For example, if the output of the polarization controller 1.7 is put through a device such as repeater, amplifier, splitter, etc., then the output of the device would not change form or substance.

But in this instance, the data signal D 1.10 is clearly different, both in form and substance, when compared to the output from the polarization controller 1.7. First, Bulow

clearly indicates that the output of the polarization controller 1.7 is optical (*see column 3, lines 13-36*) while the data signal D 1.10 output from the equalizing circuit 1.2 is electrical (*see column 2, line 53 - column 3, line 4.*) *See also Bulow, Figure 2 - reproduced below for convenience.*

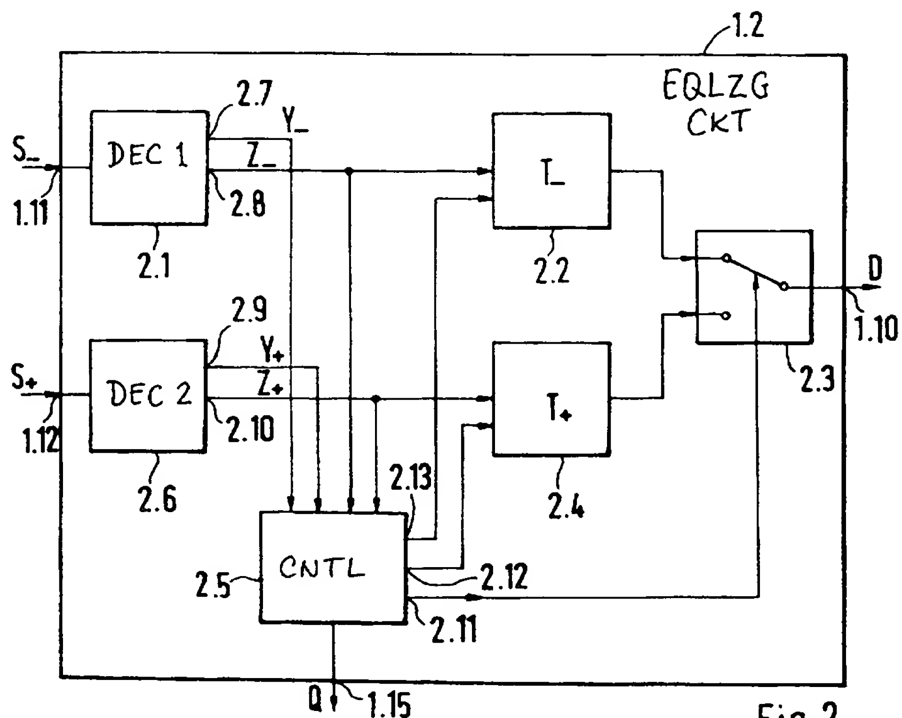

Fig.2

Second, the two signals are different in substance as well. The data signal D 1.10 is selected from either of Z_- or Z_+, which are digital values of the electrical signals S_- or S_+, respectively. The electrical signals S_- and S_+ are in turn electrical versions of polarized optical signal output from the

polarization controller 1.7 in TE mode and TM mode respectively split at the optical splitter 1.6. *See Bulow, Figure* 1. As such, the data signal D 1.10 merely represents a digital value contained in the optical signal in one of two polarization modes.

Clearly, the output of the polarization controller 1.7 is different from the output of the equalizing circuit 1.2. Therefore, Bulow cannot teach or suggest the polarization mode dispersion compensator as claimed.

3. EXAMINER'S DERIVATIVE TEST UNREASONABLE

In response to Appellant's argument that output of the polarization controller 1.7 serves as the output of the device as recited in the claims, the Examiner observes that the data signal D 1.10 is a "direct derivative" of the optical signal output from the polarization controller 1.7. The Examiner apparently reasons, unreasonably so, that because the data signal D 1.10 is "derived" from the output of the polarization controller 1.7, the data signal D 1.10 is the output of the polarization controller 1.7, and the data signal D 1.10 serves as the output of the apparatus.

First, it is noted that the data signal D 1.10 is NOT a direct derivative at all of the output of the polarization controller 1.7. As clearly seen in Figure 1 of Bulow, there are many intervening elements and signals between the output of the polarization controller 1.7 and the data signal D 1.10. The intervening elements include polarizers 1.4 and 1.5, photodiodes 1.8 and 1.9, decision circuits 2.1 and 2.6, delay lines 2.2 and 2.4, and switch 2.3. *See Bulow, Figures 1 and 2.* Thus, at best, the data signal D 1.10 is a "remote" derivative.

Second, in the Appeal Brief, Appellant clearly laid out why such argument is unreasonable. To summarize, under the Examiner's reasoning, any subsequent signal that is influenced by a previous signal through a chain of elements, no matter how many or how remote, the subsequent signal can be interpreted to be the output of a previous device that produced the previous signal.

In response, the Examiner pointed to Bulow, column 3, lines 4-7 which states, "The equalizing circuit 1.2 has an output 1.10 for a data signal D derived from optical signal S…" Apparently, the Examiner is under the impression that because the reference uses the magic word "derived," the test is reasonable. However,

a simple presence of the magic word in the reference does not turn an otherwise unreasonable test into a reasonable test.

In the portion of Bulow relied upon by the Examiner, Bulow is merely recognizing that the data signal D 1.10 is influenced by the state/condition of the output of the polarization controller 1.7. In any system, it is always the case that an output of the system is a function of the inputs to the system and the states of the components of the system. However, stating the obvious does not change the unreasonableness of the "derivative" test.

4. OUTPUT OF THE APPARATUS IS OPTICAL

The Examiner asserts that the claim language does not give a clear indication of the composition of the output signal of the polarization mode dispersion compensating apparatus and that the claim language fails to specifically define a positional relationship between the polarimeter and the polarization mode dispersion compensator that allows for only an optical output. *See Examiner's Answer, page 13, lines 15-21.* Contrary to the Examiner's assertion, language of the claims does clearly indicate both.

Independent claims 1 recites, in part, "**an output of said polarization mode dispersion compensator** serving as an output of the polarization mode dispersion compensating apparatus." *Emphasis added.* Claim 1 also recites, in part, "a polarimeter **optically coupled to the output of said polarization mode dispersion compensator** and outputting electrical signals representing polarization states of the output of said polarization mode dispersion compensator." *Emphasis added.*

It is clear that the polarimeter is optical coupled to **the** output of the polarization mode dispersion compensator. Since **the output of the compensator is optically coupled** to the polarimeter, **the output** of the compensator must be **optical.** Since output of the compensator is optical and the same output serves as the output of the compensator, the output of the apparatus must be also **optical.**

For claim 12, the situation is even clearer. Claim 12, recites in part, "wherein an **optical signal output** of a polarization mode dispersion compensator **serves as an output** of a polarization mode dispersion compensating apparatus."

5. EXAMINER INCONSISTENT

It has been shown that (1) **an output** of the polarization mode dispersion compensator (which is optical) serves as the output of the apparatus, and (2) the polarimeter is optically coupled to **the output** of the compensator. It is clear that the output of (1) **is the same** as the output of (2).

The Examiner is inconsistent in his attempt to justify the assertion that Bulow teaches both of the above noted features. First, to justify (1), the Examiner asserts that the electrical data signal D 1.10 is considered to the output of the polarization controller 1.7 since the signal data D 1.10 is a derivative of the direct output of the controller 1.7. *See discussion above.*

But to justify (2), the Examiner asserts that the direct output of the polarization controller 1.7 (allegedly equivalent to the compensator as claimed) is the output. Since the output of the polarization controller 1.7 is an optical signal and is inputted to the allegedly equivalent polarimeter (elements 1.4, 1.5, 1.8, 1.9 and 1.2 of Figure 1 of Bulow), the feature of being optically coupled to the output of the compensator is allegedly met.

The Examiner's is taking an inconsistent position. The claim requires that the output noted in (1) is the same output noted in

(2). However, it is abundantly clear that the data signal D 1.10 output by the equalizing circuit 1.2 used to justify (1) is not the same as the direct output of the polarization controller 1.7, used to justify (2).

6. BULOW CANNOT TEACH OR SUGGEST THE POLARIMETER AS CLAIMED

Independent claims 1 recites, in part, "a polarimeter optically coupled to the output of said polarization mode dispersion compensator and outputting electrical signals **representing polarization states** of the **output** of said polarization mode dispersion compensator." *Emphasis added.* Claim 12 recites a similar feature. In the Examiner's Answer, the Examiner asserts that the output Q of the equalizing circuit 1.2 meets this feature. *See Examiner's Answer, page 14, line 10 - page 15, line 9.*

First and foremost, the polarization state is a **vector quantity**. Thus at a minimum, a single polarization state includes two component values - direction and magnitude. Second, the claim clearly allows for multiple polarization states for a particular optical signal.

On the other hand, the output Q of the equalizing circuit 1.2 as described in Bulow is **single scalar value** representing the quality of the input signal to the device. Appellant finds it very difficult to determine how a single scalar value Q can be equivalent to potentially vector values.

Clearly, the Examiner's assertion that the single scalar value Q represents the polarization states of an optical signal simply cannot be true. Thus, contrary to the Examiner's assertion, Bulow cannot be relied upon to teach or suggest the polarimeter as claimed.

7. CONCLUSION

For the reasons specifically set forth above as well as in the Appeal Brief, the outstanding rejections set forth in the Final Office Action should be REVERSED.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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